

## PATENT ABSTRACTS OF JAPAN

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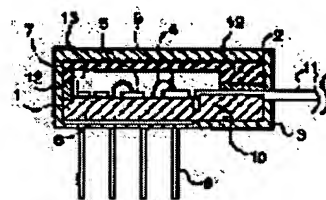
## (54) SEMICONDUCTOR DEVICE AND OPTICAL COMMUNICATION MODULE

## (57)Abstract:

PROBLEM TO BE SOLVED: To optimize the long-term in-casing temp. of a package formed by using resin by providing the internal space or the inside of the sealing resin in the package with a heating element and allowing this heating element to generate heat, thereby maintaining the temp. of the internal space or the sealing resin higher than the temp. of the atmosphere in which the package is placed.

SOLUTION: A substrate 1 consists of Si or glass and its front surface is provided with wirings for transmitting electric power and electric signals to a semiconductor laser element 4, a photodetecting diode 5, a driving IC 6 and the heating element 7. The

heating element 7 is energized to generate heat, by which the relative temp. in the internal space 13 is lowered and dew condensation is prevented. The evaporation of the moisture included in the resin 3 and adhesive 12 is accelerated and the moisture is discharged as steam to the outside of a model by elevating the temp. of the resin 3 and the adhesive 12 higher than the atmosphere in which the module is placed by the heat generation. The heating element is continuously driven to prevent the elevation of the relative temp. in the internal space by starting the driving of the heating element simultaneously with the operation start of the module.



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